Source: **SA1**

Title: **CRs to 22.240 on various subjects (Rel-6)**

Document for: **Approval**

Agenda Item: **7.1.3**

Meet	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	Doc. SA1
SP-22	SP-030707	22.240	02	-	Rel-6	F	Clarifications on general service requirements and data description requirements	6.1.0	6.2.0	S1-031256
SP-22	SP-030707	22.240	03	-	Rel-6	F	Clarifications GUP data access and administration	6.1.0	6.2.0	S1-031257
SP-22	SP-030707	22.240	04	-	Rel-6	F	Clarifications on GUP synchronisation	6.1.0	6.2.0	S1-031258

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CHANGE REQUEST

⌘ **22.240** **CR** **002** ⌘ **rev** **-** ⌘ Current version: **6.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [X] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Clarifications on general service requirements and data description requirements
Source:	⌘	SA1 (Siemens)
Work item code:	⌘	GUP
Date:	⌘	26/06/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Requirements in section 6 of TS 22.240 need to be tidied up. (e.g. the same requirement re-appears in a slightly different way, or requirements need to be clearly distinguished from explanatory text)
Summary of change:	⌘	Requirements in section 6 of TS 22.240 are tidied up.
Consequences if not approved:	⌘	Unclear requirements could lead to misinterpretation by SA2, SA5, T2 and CN4.

Clauses affected:	⌘	6.1, 6.3, 6.6			
Other specs affected:	⌘	**Y**	**N**		
		X		Other core specifications	23.240, 23.241, 29.240
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6 General Requirements

This clause includes different general technical requirements which are not from the perspective of a particular stakeholder.

6.1 Network Requirements

These requirements are collected from the point of view of technical Network infrastructure and Elements:

- The GUP data shall be accessed by ~~a~~ standardised GUP interfaces and protocols which use the generic GUP data model to carry the user profile.
- The GUP Interface shall be independent of the structure and semantics of the data.
- The GUP access mechanism shall support accessing of the whole profile data or a selected part of it.
- The GUP access mechanism shall include read, create, modify and delete access.
- The GUP data shall be transferred in a standardised way.
- The GUP interface shall include a standardised way for access control.
- The GUP interface shall enforce the subscriber privacy.
- The GUP interface shall enforce the user privacy.
- The GUP shall not cause significant additional load or delays to the network functions and elements.

6.2 UE Requirements

This subclause includes different UE specific requirements for the 3GPP GUP.

- GUP shall provide mechanisms to describe GUP data in the UE (e.g. terminal capabilities, user preferences, etc).
- GUP shall provide mechanisms to access (create, read, modify or delete) GUP data in the UE.
- Irrespective of the connectivity status of the UE, GUP data stores in the UE shall follow the data consistency, synchronisation and access control requirements.
- It shall be possible to back up GUP data to the home network or VASP network and to restore it to a UE.

6.3 General Service Requirements

This subclause includes different Service aspects and requirements for the 3GPP Generic User Profile. ~~such as~~The following general requirements from the point of view of different Service Applications apply:~~:~~

- It shall be possible for an application to retrieve the whole user profile or selected parts of it in one transaction.
- There shall be effective means to retrieve individual GUP data elements with acceptable delay for real-time services.

One typical use case for the latter requirement is a call control application that would take advantage of subscriber's preferences or charging related information.

Generally user related data are stored in either one or several entities e.g. in HSS, in Application Servers (AS) or in the UE. To avoid unnecessary duplicated data storage the application shall be able to fetch selected parts of user's GUP data.

~~Secondly there are universal services that are not subscribed to. Those applications may also need GUP data related either to the originating or destination party~~. ~~There shall be effective means to retrieve individual GUP data elements in real-time. One typical use case is a call control application that would take advantage of subscriber's preferences or charging related information~~.

Third party applications may take advantage of the features specified e.g. for Open Service Access (see 3GPP TS 22.127 [3]) to access GUP data.

~~The specified GUP interface shall apply the GUP data model to carry the user profile information for different service applications. It shall be possible for service application to retrieve the whole user profile or selected parts of it in one transaction with acceptable delay for real-time services.~~

- The description of GUP data shall be easily extensible for new, proprietary uses without any problems caused for the existing or standard applications.

~~Where the full capabilities of the 3GPP Generic User Profile are not available because of failure of an entity the application is notified about the abnormal situation~~.

6.4 Management Requirements

This subclause includes different technical Management aspects for the 3GPP Generic User Profile based on the needs of e.g. Self-Service Management, Subscription Management, Service Management, UE Management, Network Element Management, Network Management and Customer Relationship Management.

In 3G networks it is expected that user profile data is not only distributed over different network elements but belongs to different administrative domains. These administrative domains may be closed against external access. However, in order to enable a seamless service experience for the user a controlled transparency to exchange user profile data is needed.

There exist two main cases to be addressed:

Domain borders in the home network:

Already in the network of the subscriber's home network operator there may exist different domains. Potential examples are application of 3rd party value added service providers which are loosely coupled with the network provider, e.g. their applications run under the brand of the network operator but their data are stored and maintained apart from the network operator's entities.

Domain borders between different network operators:

This is the well-known roaming scenario where a user is served by another network than his home one. Roaming is already addressed by mobile networks but in the case of 3G networks there is an important additional requirement: The assumed frequent changes of applications induces a need to handle frequent changes of data sources/consumers.

The user profile data access architecture shall enable the transparent and flexible usage of the user profile data. It shall provide transparent access to distributed data fulfilling the needs of the different roles described above. Furthermore, the architecture shall address the fact that parts of the user profile data are potentially located in different administrative domains. Possible means are negotiation capabilities and proxy functionality at the domain borders.

6.5 Synchronization Requirements

The following requirements are applicable to the synchronization model:

1. It shall be possible to have one or more component instances representing a given GUP component.
2. Among these instances, one and only one shall be marked with the role of *master instance*.
3. It shall be possible to change the role of master instance for one instance to another.
4. GUP shall offer a mechanism to define *synchronized copies*, i.e. instances that are kept synchronized with the master instance.
5. GUP shall offer a mechanism to define *working copies*, i.e. instances that do not require any synchronization.

6. GUP shall make sure that synchronized copies do not conflict with the access right of the corresponding GUP components.

6.6 Data Description Requirements

The Generic User Profile is a generic, extensible profile data collection with mechanisms to e.g. create, retrieve, delete and modify the data. GUP shall define a standardised way of data description. This allows for a standardised access and handling of these data, not excluding the possibility of proprietary extensions.

Only part of the data contents are standardised within 3GPP specifications, whereas application specific data is outside the scope of the 3GPP standardisation. This specification does not mandate any 3GPP service specific data to be part of the 3GPP Generic User Profile. However the common data types shall be specified to facilitate the separate work on the service specific definitions (e.g. for the user profile in HSS).

The common data shall contain data types for at least:

- Private IDs (IMSI and IMS Private User Identity)
- Public IDs (MSISDN and SIP URL)
- Other address~~es~~ types, that are supported by 3GPP (e.g. e-mail)
- Service identifications
- Generic privacy control data
- ~~Generic error data~~
- Date and time
- Service Subscription state (e.g. "active", "not subscribed", "dormant" ...)

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CHANGE REQUEST

⌘ 22.240 CR 003 ⌘rev - ⌘ Current version: 6.1.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [X] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Clarifications GUP data access and administration
Source:	⌘	SA1 (Siemens, Nokia)
Work item code:	⌘	GUP
Date:	⌘	26/06/2003
Category:	⌘	F
Release:	⌘	Rel-6

Use one of the following categories:
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R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In section 6 of TS 22.240 the requirement can be found that GUP access mechanism shall include read, create, modify and delete access. However this has not been further specified. The CR tries to close this gap in GUP.
Summary of change:	⌘	Requirements in section 6 of TS 22.240 on GUP access mechanism are elaborated. In particular it is clarified, that creation, modification and deletion of GUP data does not include modification of the structure of GUP components at a specified data store, nor does it imply management of GUP data stores of GUP component instances. In 6.4 it is clarified, that these management tasks are outside the scope of GUP.
Consequences if not approved:	⌘	Unclear requirements could lead to misinterpretation by SA2, SA5, T2 and CN4.

Clauses affected:	⌘	6.1, 6.4			
Other specs affected:	⌘	Y / N		⌘	
		X /	Other core specifications		23.240, 23.241, 29.240
		/ X	Test specifications		
		/ X	O&M Specifications		
Other comments:	⌘				

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These requirements are collected from the point of view of technical Network infrastructure and Elements:

- The GUP data shall be accessed by a standardised GUP interfaces and protocols which use the generic GUP data model to carry the user profile.
- The GUP Interface shall be independent of the structure and semantics of the data.
- The GUP access mechanism shall support accessing of the whole profile data or a selected part of it.
- The GUP access mechanism shall include read, create, modify and delete access. GUP shall provide these access mechanisms to read, create, modify, and delete data of GUP components.

Note: This does not include installation and modification of the structure of GUP components at a specified data store, nor does it imply management of GUP data stores of GUP component instances.

- The GUP data shall be transferred in a standardised way.
- The GUP interface shall include a standardised way for access control.
- The GUP interface shall enforce the subscriber privacy.
- The GUP interface shall enforce the user privacy.
- The GUP shall not cause significant additional load or delays to the network functions and elements.

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- Generally user related data are stored in either one or several entities e.g. in HSS, in Application Servers (AS) or in the UE. To avoid unnecessary duplicated data storage the application shall be able to fetch selected parts of user's GUP data.

Secondly there are universal services that are not subscribed to. Those applications may also need GUP data related either to the originating or destination party. There shall be effective means to retrieve individual GUP data elements in real-time. One typical use case is a call control application that would take advantage of subscriber's preferences or charging related information.

Third party applications may take advantage of the features specified e.g. for Open Service Access (see 3GPP TS 22.127 [3]).

- The specified GUP interface shall apply the GUP data model to carry the user profile information for different service applications.

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The description of GUP data shall be easily extensible for new, proprietary uses without any problems caused for the existing or standard applications. Where the full capabilities of the 3GPP Generic User Profile are not available because of failure of an entity the application is notified about the abnormal situation.

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Already in the network of the subscriber's home network operator there may exist different domains. Potential examples are application of 3rd party value added service providers which are loosely coupled with the network provider, e.g. their applications run under the brand of the network operator but their data are stored and maintained apart from the network operator's entities.

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Management of GUP data components:

Making a particular data store available for GUP is not in the scope of GUP and needs to be administered by other means.

The administration (installation and modification) of the structure of GUP components at a specified data store is not in the scope of GUP and needs to be administered by other means.

6.5 Synchronization Requirements

The following requirements are applicable to the synchronization model:

1. It shall be possible to have one or more component instances representing a given GUP component.
2. Among these instances, one and only one shall be marked with the role of *master instance*.
3. It shall be possible to change the role of master instance for one instance to another.

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Only part of the data contents are standardised within 3GPP specifications, whereas application specific data is outside the scope of the 3GPP standardisation. This specification does not mandate any 3GPP service specific data to be part of the 3GPP Generic User Profile. However the common data types shall be specified to facilitate the separate work on the service specific definitions (e.g. for the user profile in HSS).

The common data shall contain data types for at least:

- Private IDs
- Public IDs
- Other addresses
- Service identifications
- Generic privacy control data
- Generic error data
- Date and time
- Service state

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CHANGE REQUEST

⌘ **22.240** **CR** **004** ⌘ **rev** **-** ⌘ Current version: **6.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [X] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Clarifications on GUP synchronisation
Source:	⌘	SA1 (Siemens, Nokia, Lucent, Ericsson)
Work item code:	⌘	GUP
Date:	⌘	26/06/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The description of the GUP synchronisation model is unclear.
Summary of change:	⌘	It is clarified that a data consumer may request a copy of a data component and that the data requestor may request that the copy is kept synchronised with the master component. All text relating to synchronisation within a physical data store have been removed as this is out of scope of GUP.
Consequences if not approved:	⌘	Unclear requirements could lead to misinterpretation by SA2, SA5, T2 and CN4

Clauses affected:	⌘	4.1, 4.4, 6.3, 6.5			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	23.240, 23.241, 29.240
		X /	Other core specifications		
		/ **X**	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘				

4 General description

4.1 Introduction

The fact of having several domains within the 3GPP mobile system (e.g. Circuit-Switched, Packet-Switched, IP Multimedia Subsystem) and access technologies (e.g. GERAN, UTRAN and WLAN) introduces a wide distribution of data associated with the user. Further, the new functions both in terminals and networks mean that the data related to Users, Services and User Equipment will be increased greatly. This causes difficulties for Users, Subscribers, network Operators and Value added service providers to create, access and manage the user-related data located in different entities.

The objective of specifying the 3GPP Generic User Profile is to provide a ~~conceptual description~~means to enable harmonised usage of the user-related information located in different entities. The specification of the GUP shall also allow extensibility to cater for future developments.

The 3GPP Generic User Profile is the collection of User-related data which affects the way in which an individual user experiences services where a community of entities share this data. The 3GPP Generic User Profile can be stored in the home network environment and additionally storage can be extended to the UE and/or Value Added Service Provider equipment.

The 3GPP Generic User Profile will be accessed by different stakeholders and managed either by one (centralised) or by different stakeholders (de-centralised) such as the user, subscriber, value added service provider and network operator by a standardised access mechanism. The 3GPP Generic User Profile allows intra-network usage (i.e. data exchange between applications within a mobile operator's network) and inter-network usage (between mobile operator's network and value added service providers) as illustrated in Figure 1.

NOTE: MVNOs and visited networks are treated as value added service providers in terms of GUP data exchanges with mobile operator's network.

The 3GPP Generic User Profile may be also be used by different applications in a standardised way.

The 3GPP Generic User Profile will help to create and manage the user data in each entity and on the other hand to make it easier to find all user related data as a whole in the home network environment.

Technically the 3GPP Generic User Profile provides an architecture, data description and interface with mechanisms to handle the data.

4.1.1 Intended Usage of the Generic User Profile

The intended usage of the 3GPP generic user profile is a critical factor driving its detailed specification, e.g., architecture and data model. In general, user profile data can be shared between different stakeholders to facilitate the following:

- **User preference management**: Enable applications to read and utilize a limited set of user preference information
- **User service customization**: Enable applications to read and utilize personalized service information, i.e., individual settings for a particular service
- **Terminal capability management**: Enable applications to access terminal-related capabilities
- **User Information sharing**: Enable applications to read and utilize application level information, e.g. address book information
- **Profile key access**: Enable applications to use a unique identity as a key to access profile information, .e.g. any public user identity or an alias.

It is intended that the 3GPP GUP, in particular, will address all of the above. As can be inferred, a user's identity can serve as the unique common key into the profile.

4.1.2 Benefits of the 3GPP Generic User Profile for individual stakeholders

The following chapter shows in an exemplary way how stakeholders may benefit from GUP. The examples given are neither exhaustive nor are they meant to be part of, or be implemented by GUP. On the contrary, these functions / use-cases need to be seen distinct from GUP, but capabilities offered through GUP (e.g. a common data description, data access- and synchronisation mechanisms …) may be utilised to build these functions.

- Subscription Management and Customer Care:
  Subscription Management [2] benefits from a standardised way to access subscription data of a user. Already today customer care is a noticeable part of an operator's expenses, it will grow to be even more expensive as more services and more terminal types become available for 3GPP system. Unlike the Supplementary services in GSM new services in 3GPP are not standardised. Therefore content and format of subscription data as well as the places (repositories) where subscription data are stored may be different for different new services. GUP specifies the description of- and access of data in a standardised way. This will allow:

  - **Service providers** as well as Value Added Service providers to use standardised GUP mechanisms for Subscription Management and Customer Care by the operator.

  - Reduce costs for Subscription Management and Customer Care for the **operator** and/or **service provider** and/or value added service provider since management tools may rely on this standardised mechanism.

- Terminal Management:
  GUP mechanisms (data description, synchronisation mechanisms and backup mechanisms for terminal based data) will allow:

  - A **user** to save and/or restore terminal and service settings.

  - An **operator** to extend his Customer Care to services in the terminal (e.g. GUP mechanisms could be used to support terminal diagnostics)

- Subscription Check by third party provided services:
  Third party provided services may run on application servers outside the 3GPP system. However subscription information may be kept by the home operator.
  To find out, whether a service is allowed to be invoked by a particular user the service needs to check its subscription. Access to this information can be controlled by means of GUP mechanisms.

  - Benefit for third party **value added service providers** and for

  - **Operators**, who want to keep subscription within their domain

- Services Interaction:
  If personalisation of services possibly effect other services it may be advantageous, that such personalisation is visible to these other services. If a service is designed to permit access to these data through GUP mechanisms:

  - the **user** or **operator** may choose to allow certain services to access certain user data of other services of the user.

- Provision of Terminal Capability information:
  Services (from the home- or visited network operator or provided by third parties) may need to know what capabilities the terminal, that is currently used by the user, supports. Multiple provisioning protocols are a problem for terminal vendors since the UE has to support all of them. The GUP data will be described in the same way and can therefore be used in different protocols without having to change. GUP mechanisms could provide the basis for retrieval of a user's terminal capabilities.

  - Benefit for the **value added service provider**, who can rely on a GUP mechanism to obtain this information.

4.2 Conceptual view of the GUP

For each user (characterised by an IMSI or IMS PID) one User Profile exists, which may consist of several 'components'. These components may be distributed in the home network, the User's Equipment and value added service provider's environment. Within the home network, the components may be distributed in various network nodes. Figure 1 below provides a conceptual overview of GUP and is as such for informative purposes only. Only one

master of the component exists, but one or more copies of the master component may exist. The home operator shall be able to copy master components, which are located outside the home network to the home network. Within the home network, functionality exists that is able to locate GUP components, thereby making applications unaware of the actual location of the components. The administration and management of the data associated with this functionality is under the control of the home network. Although GUP does not attempt to provide an actual classification of the data it may contain, one may consider categorisations such as general user information, terminal related information, service specific information, etc. as indicated in subclause 4.4.

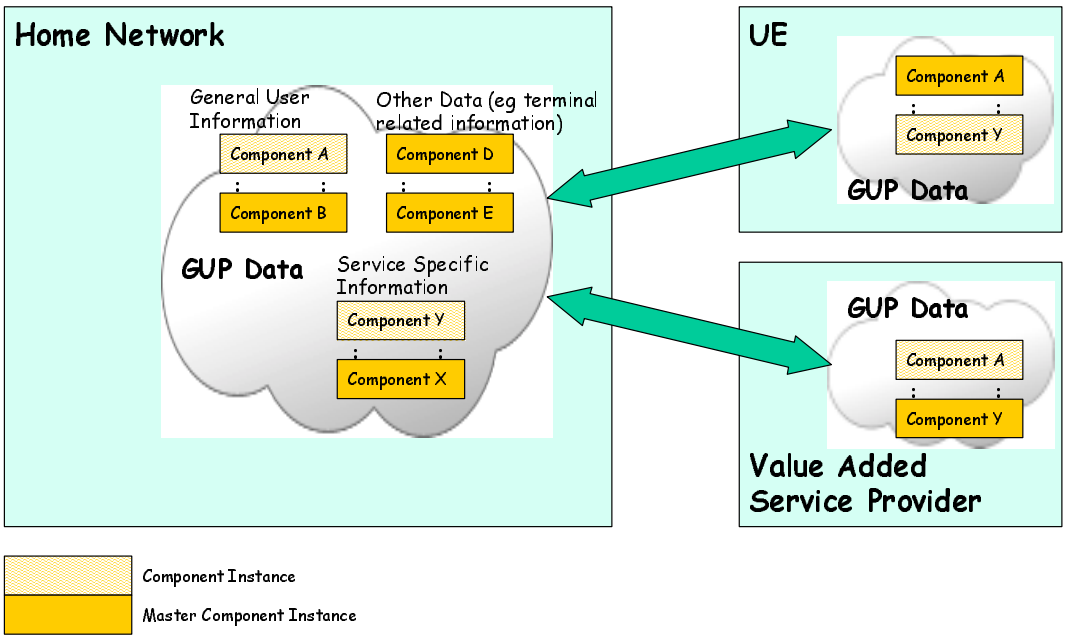

Figure 1: Conceptual view of GUP

4.3 GUP Data Stores and GUP data Users

This subclause describes in general terms where the generic user profile data resides and which entities use that information. A general feature of the user profile is that the different entities are data consumers for a certain subset of the generic user profile and are data suppliers for another part. The 3GPP GUP data are distributed by nature and consequently stored in the UE, home network and Value Added Service Provider Equipment.

The figure 2 below shows the entities involved in handling of the 3GPP Generic User Profile.

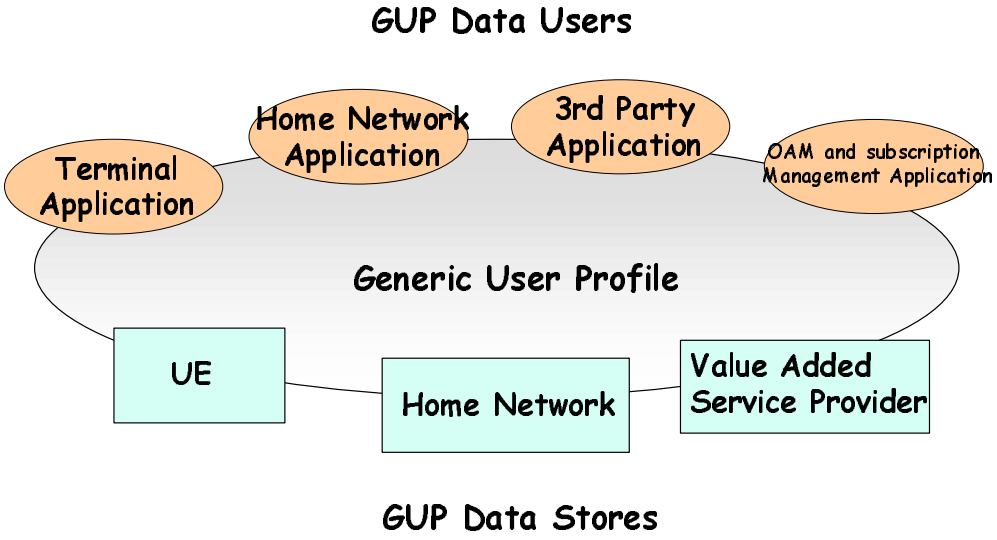

Figure 2: Illustration of the scope of 3GPP Generic User Profile

The Generic User Profile provides a generic mechanism to access and manipulate user related data for suppliers and consumers. Using this mechanism the data can be retrieved and managed in a uniform way. However the data contents itself are not described within the Generic User Profile, but only the data model and a schema shall be defined.

The suppliers and consumers of the data can be divided into the following groups of applications:

- Terminal applications in the UE
- Applications in the home network
- 3rd Party Applications
- OAM and subscription management applications

Terminal applications are of various nature and they can both supply Generic User Profile data to the above listed data stores and retrieve the data for use in the application. The real-time response requirements for the applications vary depending on the type of the application.

Applications in the home network may include those related to call or session handling as well as messaging or web services. Typically fairly high requirements are set on the response time.

3rd Party Applications are similar to applications in the home network but they are non-trusted which means that strict security, access and privacy procedures shall be carried out.

OAM activities related to user profile are provisioning and administration of user data by the network operator. These activities are characterised by needs for high throughput and allow longer response time. In order to allow simple and centralized administration it should be transparent to the administrator where the different parts of the user data are stored. As a result, this role needs a single system image on user profile, or, on functional terms, a common data access function. As one alternative the user self-service management may be implemented as part of this function.

4.4 Synchronisation model

GUP components instances may be distributed in the home network, the User's Equipment and value added service provider's environment. The distribution model is shown in Figure 1.

~~**Need for replication**: In the distributed context of GUP, a GUP component (logical) cannot be mapped to a single component instance because of requirements such as performance, scalability, reliability, load balancing, etc.GUP components need to be replicated. If a data consumer requests a GUP component and a synchronized copy exists and is made available by the data store holding the synchronized copy then GUP should be capable to let the data consumer physically access either the master component instance or athe synchronized copy of the component.~~

~~**Need for consistency**: For a given GUP component, multiple component instances will represent the GUP component. However, these copies need to be consistent with each other in order to guarantee a proper behaviour of GUP.~~

~~**Need for synchronization**: In order to guarantee consistency among component instances (aka copies), we define a synchronization model.~~

A data consumer can request a copy of a GUP component, i.e. the master instance of the component. This copy may be a **working copy** or a **synchronised copy**.

Master instance: ~~To a given GUP component (logical) correspond one or more component instances (physical). Among these instances, one of them is tagged with the role of master instance".~~the data supplier holds the master instance of a GUP component.

~~The master instance will be used as the reference, in the case there is inconsistency among the component instances (aka copies) of a given GUP component.~~

NOTE: During the lifetime of a component, the role of *master instance* may be played by different component instances (e.g. in the case of failure). But at any point in time, there is always one and only one "master instance". This implementation aspect is beyond the scope of GUP.

~~The details of how the *master instance* and the synchronization are implemented are beyond the scope of the present document.this specification.~~

~~**Component copies**: GUP components may need to be copied to various locations (e.g. application server, UE, etc.) for various purposes.~~

A ***synchronized copy*** of a GUP component is a component instance that is kept synchronized with the master instance.

Synchronization here means that changes made to the master instance will be propagated to the synchronized copy (e.g. update, deletion, etc.) The synchronized copy is held within the data consumer's local store. ~~and that changes made to the synchronized copy (e.g. update, deletion, etc.) will be propagated to the master~~.

~~Data of synchronized copies may be changed, subject to access rights to that component, however changes are NOT automatically propagated to the master instance by GUP. It is the responsibility of the GUP data store in charge of that synchronized copy to request the change in the master component.~~

~~A GUP data store holding a synchronized copy of a GUP component may provide a GUP functionality to let data consumers access that synchronized copy~~

~~The management of synchronized copies (e.g. creation, deletion, etc.) is taken care of by GUP. The details of the synchronization mechanism are beyond the scope of theis present document.~~

A ***working copy*** of a GUP component is a component instance that corresponds to a copy (or snapshot) of the master instance at a given point in time. The working copy is held within the data consumer's local store. Future changes to the master instance (e.g. update, deletion, etc.) are NOT propagated to the working copy. The working copy remains unaffected by changes of the master instance of the GUP component.

~~Future changes to the working copy are NOT propagated to the master instance.~~

If a GUP component is no longer applicable for a given user, the master instance for this GUP component is deleted and all ~~relevant~~ data stores holding synchronized copies are notified about this deletion~~deleted~~.

~~If a user changes the access rights for a GUP component and the changes conflict with related synchronized copies, all related synchronized copies are deleted.~~ If the access rights of the component are changed, a~~A~~ proper notification is sent to the owner of the synchronized copy ~~explaining the reason for cancellation~~.

4.5 Contents of GUP

The present document does not mandate any data to be part of the 3GPP Generic User Profile. However the following kind of data are considered to be useful for inclusion in GUP.

1. Authorised and subscribed services information:

These kind of data are generally owned by the home operator and allow management and interrogation of subscription information and would typically consist of:

- authorised services that the subscriber may subscribe to
- services the subscriber actually has subscribed to

2. General user information

Data, owned by the user, which are not specific to individual services, but may be useful for any service. These would be data like

- settings (e.g. name, postal address), preferences (e.g. language)
- phone books, buddy lists…
- Registered Service Profiles of the user, indicating the currently active Service Profile of the user.

3. PLMN specific user information

Data, owned by the home operator, which are not specific to individual services, but may be useful for any service. These typically would be data like

- addresses (e.g. MSISDNs, URLs) of the user.
- WAP parameters (e.g. standard WAP gateway)
- GPRS parameters (in UE and HSS)
- Preferred access technologies (The preferred access technology, second preferred access technology etc. e.g. UTRAN, GERAN, WLAN etc.)

4. Privacy control data of the user

Data, owned by the user, which are specific to individual services and which control privacy settings of that service. These could e.g. be

- Privacy settings for standardised services like the Presence service or Push service.
- Privacy settings of non-standardised services.

5. Service specific information of the user:

Data, owned by the user or value added service provider, which are specific to individual services (standardised or non-standardised). These could e.g. be

- Service customisation data of the user.
- Service authentication- and authorisation data (for “single sign on”) like keys, certificates, passwords...

6. Terminal related data

These are data, which relate in particular to the user’s terminals (ME and UICC). These could e.g. consist of

- Terminal capabilities of the terminal currently in use (e.g. User Interface capabilities, communication capabilities, available services, service capabilities,…).
- Data for initial configuration and/or reset of the ME.
- Backup data for recovery of the ME configuration including service specific data.

7. Charging and billing related data

This data consists of information necessary for the user related charging and billing. This data could e.g. consist of:

- The billing policy

NOTE: The following data categories are not considered to be useful for the 3GPP Generic User Profile:

- Run Time Data.
  Data that are created during the initiation of the session, call or application execution and if they are only available during the lifetime of such session, call or application execution then they are considered as Run Time data.
- Historic/Statistic Data.
  User/system behaviour information (e.g. statistics on the usage preferred web pages; duration, number of calls, error rate).

4.6 The role of Data Description in GUP

GUP provides a means of supporting access to data for ranges of services and functions (e.g. MMS, Presence). The support of users' services and personalization data may result in manipulating data in a structured manner, and a standardised way of describing and accessing these data structures, utilizing a Data Description Method based on XML Schema.

As there may be technologies which have impact on the GUP but could not be included in the Data Description Method, the Data Description Method should take this coexistence with other technologies into consideration.

Next modified section

6.3 General Service Requirements

This subclause includes different Service aspects and requirements for the 3GPP Generic User Profile such as requirements from the point of view of different Service Applications.

~~Generally user related data are stored in either one or several entities e.g. in HSS, in Application Servers (AS) or in the UE. To avoid unnecessary duplicated data storage the application shall be able to fetch selected parts of user's GUP data.~~

Secondly there are universal services that are not subscribed to. Those applications may also need GUP data related either to the originating or destination party. There shall be effective means to retrieve individual GUP data elements in real-time. One typical use case is a call control application that would take advantage of subscriber's preferences or charging related information.

Third party applications may take advantage of the features specified e.g. for Open Service Access (see 3GPP TS 22.127 [3]).

The specified GUP interface shall apply the GUP data model to carry the user profile information for different service applications. It shall be possible for service application to retrieve the whole user profile or selected parts of it in one transaction with acceptable delay for real-time services.

The description of GUP data shall be easily extensible for new, proprietary uses without any problems caused for the existing or standard applications. Where the full capabilities of the 3GPP Generic User Profile are not available because of failure of an entity the application is notified about the abnormal situation.

Next modified section

6.5 Synchronization Requirements

~~Generally user related data are stored in either one or several entities e.g. in HSS, in Application Servers (AS) or in the UE.~~ To avoid unnecessary duplicated data storage an application should be able to access parts of the user's GUP data ~~from the most appropriate storage location through the mechanisms described in GUP. A data store holding a synchronized copy of a GUP component may provide such GUP functionality. Therefore it is required, that~~

- ~~GUP shall provide sufficient capability to enable a GUP data store holding a synchronized copy of a GUP component to let an application access that synchronized copy of the component. It shall be possible for the subscriber's home operator to configure which instance (either the master component instance or a synchronized copy) of a GUP component shall be accessible to a certain set of applications.~~

The following requirements are applicable to the synchronization model:

~~1. It shall be possible to have one or more component instances representing a given GUP component.~~

~~2. Among these instances, one and only one shall be marked with the role of *master instance*.~~

~~3. It shall be possible to change the role of master instance for one instance to another.~~

4. GUP shall offer a mechanism to define *synchronized copies*, i.e. instances that are kept synchronized with the master instance.

5. GUP shall offer a mechanism to define *working copies*, i.e. instances that do not require any synchronization.

6. GUP shall make sure that synchronized copies do not conflict with the access right of the corresponding GUP components. For example, if the access rights to some parts of the GUP component change such that the data consumer no longer has access rights, then those parts of the GUP component would no longer be synchronised.